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Publication date:
2018

Document Version
Peer reviewed version

Session "Applied Combinatorial Optimization" invited by Paolo Toth

Passenger- and operator-oriented scheduling of large railway projects

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Abstract The continued development and renewal of railway infrastructure and technology is necessary to enable railway operators to provide high quality services subject to ever increasing demand. However, the execution of large infrastructure projects causes disturbances in the network due to the occupation of infrastructure over extended periods of time. In this talk we present a multiobjective mixed-integer programming formulation for the scheduling of railway infrastructure projects that takes inconvenience caused to users of the infrastructure into account. We illustrate how the model can be used in an interactive way by planners based on their preferences, and we show that Pareto optimal solutions can be found in reasonable time using instances with realistic features. The result is a decision support model to aid infrastructure project planners in ensuring that passenger and operator inconvenience are also taken into account.

Keywords: *Project scheduling, railway infrastructure, passenger-oriented, multiobjective optimization, integer programming*